

REMARKS/ARGUMENTS

Claims 22, 26, 28-37 and 54-95 are active in this application. Support for the "stringent conditions" is found on page 13, lines 7-8. Support for the amendment to Claim 37 is found in Figure 5 and the specification on page 21, lines 12-33. Claims 56-95 find support in Claims 1-21 and the specification as originally filed. No new matter is added

Claims 22, 26, 28-37 are elected claims. Claims 54-95 are drawn to non-elected inventions, but have been added for the Examiner's consideration of rejoinder once the elected claims have been found allowable (page 2 of the Office Action).

The Applicant thanks Examiner Slobodansky for the courteous discussion granted to his representative on August 13, 2003. During this discussion, description support for the soluble GlcNAc-phosphotransferase was pointed out and is again reiterated below. While the Examiner suggested amendments to add specific sequences, for the reasons discussed during the interview and the comments below, such amendments are not deemed necessary because the specification adequately describes the claimed soluble GlcNAc-phosphotransferase. Favorable reconsideration is requested.

The rejection of Claim 22 under 35 U.S.C. § 112, first paragraph is traversed.

As duly noted by the Examiner, page 10, lines 15-17 states that SEQ ID NO:2 corresponds to the soluble GlcNAc-phosphotransferase.

The Applicant directs the Examiner's attention to Figures 4, 5, and 6 and their corresponding Figure legends on page 8 of the application. In these Figures, Figure 4 provides a schematic of the molecular engineering of soluble GlcNAc-phosphotransferase. In Figure 5, the introduction of cleavage sites between the α and β subunits of GlcNAc-phosphotransferase is diagrammed as well as schematic of insertion of restriction enzyme

sites between the α and β subunits in Figure 6. Further details for constructing the expression vector that encodes SEQ ID NO:2 is set forth on page 26, line 25 to page 29, line 19.

As described on page 10 of the application the GlcNAc-phosphotransferase is defined as an enzyme capable of catalyzing the transfer of N-acetylglucosamine-1-phosphate from UDP-GlcNAc to the 6' position of 1,2-linked mannoses on lysosomal enzymes. The human α , β and γ subunit sequences are also described on page 10 and noted as: " α subunit is shown in SEQ ID NO:4 (amino acids 1-928), the human β subunit is shown in SEQ ID NO:5 (amino acids 1-328), and the human γ subunit is shown in SEQ ID NO:7 (amino acids 25-305, signal sequence is in amino acids 1-24)." The specification further describes the α/β subunit sequences from rat and *Drosophila melanogaster* on page 10, lines 21-22.

Therefore, in light of the specification, one of skill in the art unquestionably can ascertain that the soluble GlcNAc-phosphotransferase is an engineered protein composed of α and β subunits whose transmembrane domains have been removed. With respect to the embodiment described and claimed as SEQ ID NO:2, this too is readily understood to be the soluble GlcNAc-phosphotransferase with a Furin proteolytic cleavage site (SEQ ID NO:24) interposed between the two subunits. As a result, Claim 22 is adequately described. Withdrawal of this ground of rejection is requested.

The rejection of Claims 26 and 28-37 under 35 U.S.C. § 112, first paragraph is traversed.

As noted above, the specification describes more than just SEQ ID NO:2. The specification describes sequences from human, rat, and *D. melanogaster* (e.g., see SEQ ID NOS:14 and 16 in addition to SEQ ID NO:4 and 5 from human). The α and β subunits are described, e.g., see page 10, and various proteolytic cleavage sites that can be interposed between these α and β subunits are described in Figure 5 and page 21, lines 21-23. In

addition, the activity of GlcNAc-phosphotransferase is clearly defined on page 10 as capable of catalyzing the transfer of N-acetylglucosamine-1-phosphate from UDP-GlcNAc to the 6' position of 1,2-linked mannoses on lysosomal enzymes.

Therefore, Claims 26 and 28-37 are, in fact, adequately described in the specification. Withdrawal of this rejection is requested.

The rejection of Claims 28-30 and 33 under 35 U.S.C. § 112, second paragraph is traversed.

The stringent conditions have been added as appropriate.

Claim 30 has been amended to depend from Claim 26.

Concerning the proteolytic cleavage sites listed in Claim 35-37, Applicant notes that the essential inquiry pertaining to the requirement under 35 U.S.C. § 112, second paragraph is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

- (A) The content of the particular application disclosure;
- (B) The teachings of the prior art; and
- (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. See MPEP § 2173.02

These proteolytic cleavage sites are described in the specification on page 21, lines 12-23, which describes such "non-natural" proteolytic cleavage sites. Specific examples of those proteolytic cleavage sites are depicted in Figure 5 and include the sequences of SEQ ID NOs:22-25.

Claim 37 has been amended for clarity.

In view of the above, withdrawal of this ground of rejection is requested.

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Applicant also requests rejoinder of the non-elected process claims and allowance of the application.

Respectfully submitted,

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